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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,345	03/26/2004	Jihong Zhou	P25124	7564

7055 7590 07/26/2005

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RESTON, VA 20191

EXAMINER

JOHNSON, CHRISTINA ANN

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/809,345

Applicant(s)

ZHOU ET AL.

Examiner

Christina Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/11/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Regarding claims 1-20, the phrase "nest-like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).
4. Regarding claims 5-6 and 8, the phrase "rod-like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dight et al. in view of EP 0 209 332.

Dight et al. (US 5,023,220) discloses zeolite and clay composite microspheres obtained by reacting precursor microspheres composed of a mixture of metakaolin and kaolin calcined through the exotherm with a sodium silicate solution to crystallize zeolite Y in situ (column 5, lines 15-30). The reference teaches that the composition is prepared by (1) calcining and dehydrating hydrous kaolin to obtain metakaolin, which is then combined with kaolin calcined through its exotherm, and a sodium silicate binder, and formed by spray-drying into microspheres of 65-85 microns in diameter (column 7, line 60 – column 8, line 20); (2) the microspheres are next mixed with one or more sources of sodium silicate, sodium hydroxide, water, and (preferably) zeolite seed (considered to meet the “guide agent” claimed) to form a slurry (column 8, lines 50-60); and (3) crystallizing the reactant slurry at a temperature in the range of 200-215 degrees F (93-101 degrees C) for 10-30 hours under stirring (column 9, lines 60-65 and Example 1). The amounts of materials taught by the reference meet the instantly claimed amounts. Refer to column 7 and column 9. The reference teaches, by incorporation by reference of US 4,631,262, the preparation of seed material, which meets the preparation of the guide material instantly claimed. Refer to column 6 of ‘262.

In an example, the reference details the preparation of a composite containing 55% by weight of Y zeolite (Example 1). The reference further teaches that the composite material has a surface area in the range of from about 600-650 m²/g (column 11, lines 55-60).

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The reference does not disclose (1) the calcination temperature used to convert kaolin to metakaolin and (2) the weight ratio of guide agent to metakaolin in the reaction feed mixture.

With respect to (1), EP 0 209 332 discloses that kaolin can be converted to metakaolin by calcination at temperatures in the range of from 550-925 degrees C (column 2, lines 25-40). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method taught by Dight et al. to include the calcination temperatures taught by the EP reference in order to effect the change desired by Dight et al., i.e. the transformation of kaolin to metakaolin. Because both references are concerned with the production of Y zeolite from in situ crystallization of metakaolin, one would have reasonable expectation of success from the combination.

With respect to (2), one of ordinary skill would recognize that the amount of seed crystal available at the start of crystallization would affect the speed and effectiveness of the crystallization process. Therefore, one of ordinary skill would have been motivated to optimize the amount of seed crystal used and, consequently, the ratio of metakaolin to guide agent. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215.

With respect to the properties of the product produced, i.e. the nest-like structure and crystal structure, it is the position of the examiner that because the Dight et al. reference discloses a process would renders the claimed process obvious, the resulting product would also render the claimed product obvious.

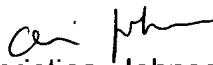
Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Johnson whose telephone number is (571) 272-1176. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Christina Johnson
Patent Examiner
Art Unit 1725

7/21/05

CAJ
July 21, 2005